VOLUME CONTENTS Volume 34

Vol. 34 Nos. 1–2 February 2004

Proceedings of a Symposium on Prebiotic Chemistry and Early Evolution (COST D27), held in Ravello, Italy, 17–20 October 2002
Guest Editor:
Pier Luigi Luisi

PIER LUIGI LUISI / Introduction 1–2

HOWELL G.M. EDWARDS / Raman Spectroscopic Protocol for the Molecular Recognition of Key Biomarkers in Astrobiological Exploration 3–11

FRANCO CATALDO, YEGHIS KEHEYAN and DIETER HEYMANN / Complex Organic Matter in Space: About the Chemical Composition of Carriers of the Unidentified Infrared Bands (UIBS) and Protoplanetary Emission Spectra Recorded from Certain Astrophysical Objects 13–24

SANDRA PIZZARELLO / Chemical Evolution and Meteorites: An Update 25–34

AUGUSTE COMMEYRAS, JACQUES TAILLADES, HÉLÈNE COLLET, LAURENT BOITEAU, ODILE VANDENABEELE-TRAMBOUZE, ROBERT PASCAL, ALAIN ROUSSET, LAURENCE GARREL, JEAN-CHRISTOPHE ROSSI, JEAN-PHILIPPE BIRON, OLIVIER LAGRILLE, RAPHAËL PLASSON, EDDY SOUAID, GRÉGOIRE DANGER, FRANCK SELSIS, MICHEL DOBRIJÉVIC and HERVÉ MARTIN / Dynamic Co-Evolution of Peptides and Chemical Energetics, A Gateway to the Emergence of Homochirality and the Catalytic Activity of Peptides 35–55

D.J. DONALDSON, H. TERVAHATTU, A.F. TUCK and V. VAIDA / Organic Aerosols and the Origin of Life: An Hypothesis 57–67

V. BOLIS, A. BARBAGLIA, M. BROYER, C. BUSCO, B. CIVALLERI and P. UGLIENGO / Entrapping Molecules in Zeolites Nanoactivities: A Thermodynamic and *Ab-Initio* Study 69–77

ISABELLE WEISSBUCH, GERARD BOLBACH, LESLIE LEISEROWITZ and MEIR LAHAV / Chiral Amplification of Oligopeptides via Polymerization in Two-Dimensional Crystallites on Water 79–92

THOMAS H. HITZ and PIER L. LUISI / Spontaneous Onset of Homochirality in Oligopeptide Chains Generated in the Polymerization of N-Carboxyanhydride Amino Acids in Water 93–110

UWE J. MEIERHENRICH and WOLFRAM H.-P. THIEMANN / Photochemical Concepts on the Origin of Biomolecular Asymmetry 111–121

STEFANO PIOTTO / Lipid Aggregates Inducing Symmetry Breaking in Prebiotic Polymerisations 123–132

MARCO FRANCHI and ENZO GALLORI / Origin, Persistence and Biological Activity of Genetic Material in Prebiotic Habitats 133–141

CLAUDIO ANSELMI, PASQUALE DE SANTIS, RAFFAELLA PAPARCONE, MARIA SAVINO and ANITA SCIPIONI / A Possible Role of DNA Superstructures in Genome Evolution 143–149

TOMOAKI MATSUURA and ANDREAS PLÜCKTHUN / Strategies for Selection from Protein Libraries Composed of De Novo Designed Secondary Structure Modules 151–157

B. NICOLAUS, V. SCHIANO MORIELLO, L. LAMA, A. POLI and A. GAMBACORTA / Polysaccharides from Extremophilic Microorganisms 159–169

STEEN RASMUSSEN, LIAOHAI CHEN, BÄRBEL M.R. STADLER and PETER F. STADLER / Proto-Organism Kinetics: Evolutionary Dynamics of Lipid Aggregates with Genes and Metabolism 171–180

BARAK SHENHAV and DORON LANCET / Prospects of a Computational Origin of Life Endeavor 181–194

CONSTANTINOS M. PALEOS, DIMITRIS TSIOURVAS and ZILI SIDERATOU / Hydrogen Bonding Interactions of Liposomes Simulating Cell-Cell Recognition. A Review 195–213

SILVIA RASI, FABIO MAVELLI and PIER LUIGI LUISI / Matrix Effect in Oleate Micelles-Vesicles Transformation 215–224

STEFANO PIOTTO and FABIO MAVELLI / Monte Carlo Simulations of Vesicles and Fluid Membranes Transformations 225–235

V. NOETHIG-LASLO, P. CEVC, D. ARCON and M. ŠENTJURC / Hydrophobic Barrier in Liposomes Studied by FT-ESEEM 237–242

SARA ISLAS, ARTURO BECERRA, P. LUIGI LUISI and ANTONIO LAZCANO / Comparative Genomics and the Gene Complement of a Minimal Cell 243–256

MARTIN BRASIER, OWEN GREEN, JOHN LINDSAY and ANDREW STEELE / Earth's Oldest (~ 3.5 Ga) Fossils and the 'Early Eden Hypothesis': Questioning the Evidence 257–269

Instructions for Authors 271–275

Vol. 34 No. 3 June 2004

PREBIOTIC CHEMISTRY

ALBERT ESCHENMOSER / The TNA-family of Nucleic Acid Systems: Properties and Prospects 277-306

ADDY PROSS / Causation and the Origin of Life. Metabolism or Replication First? 307–321

ASTROBIOLOGY/EXOBIOLOGY

KEPA RUIZ-MIRAZO, JULI PERETÓ and ALVARO MORENO / A Universal Definition of Life: Autonomy and Open-Ended Evolution 323–346

Vol. 34 No. 4 August 2004

PREBIOTIC CHEMISTRY

M.G. VLADIMIROV, Y.F. RYZHKOV, V.A. ALEKSEEV, V.A. BOGDANOVSKAYA, V.A. OTROSHCHENKO and M.S. KRITSKY / Electrochemical Reduction of Carbon Dioxide on Pyrite as a Pathway for Abiogenic Formation of Organic Molecules 347-360

LESLIE E. ORGEL / Prebiotic Adenine Revisited: Eutectics and Photochemistry 361–369

PAUL A. LINDAHL / Stepwise Evolution of Nonliving to Living Chemical Systems 371–389

MARTIN AVALOS, REYES BABIANO, PEDRO CINTAS, JOSE L. JIMENEZ and JUAN C. PALACIOS / Symmetry Breaking by Spontaneous Crystallization – Is It the Most Plausible Source of Terrestrial Handedness We Have Long Been Looking For? – A Reappraisal 391–405

GENETIC CODE

ANDRE R.O. CAVALCANTI, ELISA SOARES LEITE, BENÍCIO B. NETO and RICARDO FERREIRA / On the Classes of Aminoacyl-tRNA Synthetases, Amino Acids and the Genetic Code 407–420

ASTROBIOLOGY/EXOBIOLOGY

LEÓN GARZÓN / Microbial Life and Temperature: A Semi Empirical Approach 421–438

Erratum 439

Vol. 34 No. 5 October 2004

PREBIOTIC CHEMISTRY

JOHN J. EISCH, PETER R. MUNSON and JOHN N. GITUA / The Potential of Photochemical Transition Metal Reactions in Prebiotic Organic Synthesis. I. Observed Conversion of Methanol into Ethylene Glycol as Possible Prototype for Sugar Alcohol Formation 441-454

C.M. CHENG, X.H. LIU, Y.M. LI, Y. MA, B. TAN, R. WAN and Y.F. ZHAO / N-Phosphoryl Amino Acids and Biomolecular Origins 455–464

KEITA OZAWA, ATSUSHI NEMOTO, EI-ICHI IMAI, HAJIME HONDA, KUNIYUKI HATORI and KOICHIRO MATSUNO / Phosphorylation of Nucleotide Molecules in Hydrothermal Environments 465–471

ARTHUR L. WEBER / Kinetics of Organic Transformations under Mild Aqueous Conditions: Implications for the Origin of Life and Its Metabolism 473–495

JESÚS RIVERA ISLAS, JEAN-CLAUDE MICHEAU and THOMAS BUHSE / Kinetic Analysis of Self-Replicating Peptides: Possibility of Chiral Amplification in Open Systems 497–512

ASTROBIOLOGY/EXOBIOLOGY

DAVID S. SMITH, JOHN SCALO and J. CRAIG WHEELER / Importance of Biologically Active Aurora-like Ultraviolet Emission: Stochastic Irradiation of Earth and Mars by Flares and Explosions 513–532

Vol. 34 No. 6 December 2004

PREBIOTIC CHEMISTRY

JOHN PARNELL / Mineral Radioactivity in Sands as a Mechanism for Fixation of Organic Carbon on the Early Earth 533-547

GÖZEN ERTEM / Montmorillonite, Oligonucleotides, RNA and Origin of Life 549–570

VLADIMIR TOLSTOGUZOV / Why Were Polysaccharides Necessary? 571–597

E.M. GALIMOV / Phenomenon of Life: Between Equilibrium and Non-Linearity 599–613

ASTROBIOLOGY/EXOBIOLOGY

TIMOTHY A. KRAL, CURTIS R. BEKKUM and CHRISTOPHER P. McKAY / Growth of Methanogens on a Mars Soil Simulant 615–626

Volume Contents 627–630